



COMMONWEALTH of VIRGINIA

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MEMORANDUM

TO: Regional Directors

FROM:  John M. Daniel, Jr., P.E., DEE
Director, Air Programs Coordination

SUBJECT: Memo 03-1004. Permit and BACT applicability under Chapter 80 Article 6 Permitting.

DATE: September 26, 2003

Copies: Air Permit Managers
Charles L. Turner, Office of Air Permit Programs
Richard G. Rasmussen, Manager Small Business Assistance

Attached you will find Guidance Memo 03-1004 entitled "The Minor Source NSR Program under Chapter 80, Article 6". This guidance describes the permit applicability test and the BACT applicability test consistent with the regulations governing Minor NSR permitting (Chapter 80 Article 6) promulgated September 1, 2003. Due to the agency need for standardizing these applicability tests, this guidance is being issued as an independent document without the accompanying changes to the manual. The manual is being modified and will be issued in a later guidance memo. Until the issuance of the revised manual, please use this guidance along with the existing manual to make permit and BACT applicability determinations.

If you have any questions regarding this memo or guidance please contact Chuck Turner in the Office of Air Permit Programs, telephone (804) 698-4016 or e-mail clturner@deq.state.va.us.

The Minor Source NSR Program under Chapter 80, Article 6

Final September 26, 2003

Revision 1 dated October 15, 2003

Background

The Minor Source NSR and Major Source NSR Regulations Overlap

The provisions of the Minor Source NSR regulation (9 VAC 5, Chapter 80, Article 6) applies to ALL stationary sources proposed for construction or modification in Virginia, including new Major Sources and major modifications of Major Sources. The Major Source NSR regulations (9 VAC 5, Chapter 80, Articles 8 and 9) apply only to new major sources and major modifications of a major source. 9 VAC 5-80-1100 H 3 requires that when the provisions of both the Minor Source NSR regulation (Article 6) and a Major Source NSR regulation (Articles 8 or 9, or both) apply to a change, and those provisions conflict, then the provisions of the applicable Major Source NSR regulation prevails. When the provisions do not conflict, then the provisions of ALL of the applicable permitting regulations apply.

Use of Minor Source NSR permit limits to avoid Major Source NSR Permit Applicability

Without federally-enforceable conditions in place to limit the “potential-to-emit” (PTE) or the “net emission increase” (NEI) of a source to some value below the Major Source NSR applicability levels, Major Source NSR applicability must be determined using the definitions of PTE and NEI appropriate to those programs. A Minor NSR permit may be issued for a potential new Major Source or potential Major Modification to limit the “potential-to-emit” (PTE) or the “net emission increase” (NEI) below the Major Source NSR applicability levels. With these federally enforceable limits in place, PSD and Non-attainment (NA) applicability may be evaluated at the PTE and NEI as it is limited by the prospective Minor Source NSR permit.

No equivalent “backup” preconstruction permit program for Minor Source NSR

There is no equivalent preconstruction permit program for Minor NSR that allows a source to take federally enforceable limits to avoid Minor NSR permitting. Since there is no “backup” preconstruction permit program for the Minor Source NSR program, permit applicability must be determined based upon the future PTE (for new sources) or future actual emissions (for modified sources) as if the source was operating without the proposed new permit limits in place. However, permit limits that: (1) are already federally enforceable, and (2) will not be changed as a result of the permit action, may be used to determine future actual emissions (FA) for permit applicability purposes for modified sources. But any current permit limits that will be changed (as a result of the proposed permit action) must be evaluated for permit applicability as if there was no future permit limit.

The use of “allowable emissions” limits in Minor Source NSR

The definition of “potential to emit” allows “a physical or operational limitation on the capacity of the source to be treated as a part of its design only if the limitation is state and federally enforceable. “Allowable emissions” limits represent physical or operational limitations. The Article 6 definition of “federally enforceable” specifically includes SIP-approved limitations such as the Chapter 40 existing source rules however EPA has held that such “prohibitive rules” are not enforceable by the Administrator unless they are also “enforceable as a practical matter” (Stein, EPA OECA, January 25, 1995). Chapter

40 rules must meet the six criteria for “enforceable as a practical matter” that EPA considers necessary for enforceability before they can be considered a limit on PTE.

Unless the Board specifically directs otherwise, source specific allowable emissions limitations under Chapter 40 of the regulations will not be assumed to be equivalent to actual emissions or assumed to limit “potential to emit” for the purpose of determining permit applicability under Article 6 or for determining BACT applicability under 9 VAC 5-80-260.

Terms Defined

Regulatory Definitions

"Allowable emissions" means the emission rate of a stationary source calculated by using the maximum rated capacity of the source (unless the source is subject to state and federally enforceable limits which restrict the operating rate or hours of operation, or both) and the most stringent of the following:

1. Applicable emission standards;
2. The emission limitation specified as a state and federally enforceable permit condition, including those with a future compliance date; and
3. Any other applicable emission limitation, including those with a future compliance date.

"Existing source" means any stationary source other than a new source or modified source.

"Modified source" means any stationary source (or portion of it), the modification of which commenced on or after March 17, 1972.

"New source" is defined in 9 VAC 5-80-1110 C to mean any stationary source (or portion of it), the construction or relocation of which commenced on or after March 17, 1972; and any stationary source (or portion of it), the reconstruction of which commenced on or after December 10, 1976.

Definitions for Policy and Guidance Purposes

Different terms will be used to refer to sources and emissions units before and after a particular change is made, in order to prevent confusion with terms that are defined in the regulations.

“Bottlenecked emissions unit” means an emissions unit with an operational limitation on the emissions unit that results solely from design or operational limitations on another emissions unit (or emissions units) at the pre-existing source. Operational limitations that are imposed upon an emissions unit by regulation or permit conditions do not result in that unit becoming a “bottlenecked emissions unit”.

“Creditable” means (with respect to an emissions decrease) that the emissions decrease is real, excess, quantifiable, and is federally and state enforceable and enforceable as a practical matter by the time that the increase in actual emissions from the particular change occurs (i.e. concurrent). An emission decrease is real if it represents a decrease in actual emissions. An emission decrease is not excess if the board has relied on it in issuing a permit for the source under the new source review program.

“Debottlenecked emissions unit” is a previously bottlenecked pre-existing emissions unit for which an increase in the potential-to-emit is directly resultant from a particular change to another emissions unit (or emissions units) at the source, not from changes to previous permit limits on the bottlenecked emissions unit. This definition does not prevent proposing new permit limits on the debottlenecked unit

to reduce the emission increase from the debottlenecked unit or make the emissions change negative (i.e. an net emissions decrease) for BACT applicability purposes.

“Directly resultant” (with respect to a particular change) means that there are changes to emissions units other than the “particular change” that meet one or both of the following criteria: (a) the changes are physically or operationally necessary in order to accomplish the particular change, or (b) the changes occur solely because the particular change imposes physical or operational limitations on other emissions units below their rated capacity without the direct imposition of permit limits on those units.

“Netted emissions unit” means a pre-existing emissions unit that is functionally related to the particular change, for which federally-enforceable physical or operational limitations are necessary to accomplish the particular change, and which results in the creation of creditable emissions reductions. The replacement of an emissions unit will almost always result in a “netted emissions unit” (the one that is removed). Physical or operational changes to other emissions units that are necessary to make the particular change happen (such as removal of a different kind of emissions unit to make way for the “particular change”) may also be considered as netted emissions units.

“Particular change” means (1) a physical or operational change to an emissions unit at a pre-existing source that would qualify as a modification or reconstruction of the emissions unit, or (2) the addition or relocation of a new emissions unit to the pre-existing source, any of which must be evaluated to determine if permitting requirements apply to the change. [This definition does not prevent proposing new permit limits on the particular change to reduce the emission increase from those units or to make the emissions change negative (i.e. an net emissions decrease) for BACT applicability purposes.]

“Pre-existing source” or “pre-existing emissions unit” means a stationary source or emissions unit that is already constructed prior to the proposed particular change, or one that is approved for construction and for which construction has commenced prior to a new proposed particular change.

“Project” means one or more “particular changes” that are related by a single functional purpose (such as increasing production on a single process line) such that all of the changes must by necessity be completed to accomplish that propose.

“Proposed modified source” means a “pre-existing source” at which a project involving one or more “particular changes” of the following types is proposed: (1) the addition of a new emissions unit, (2) the reconstruction of a “pre-existing emissions unit”, (3) the modification of a “pre-existing emissions unit”, or (4) the relocation of an emissions unit from another facility to the “pre-existing source.”

“Proposed new source” means either (1) an entirely new stationary source that is proposed for construction at (or relocation to) a location at which no facility presently exists (a “greenfield” source), or (2) the addition or relocation of emissions units to a facility that already exists, but at which there are presently no emissions units constructed.

“Unrestricted emission rate” (UER) means the potential to emit of a source or an emissions unit when operating at its maximum capacity without including in the calculation any limitation on the operational design of the source or unit in the form of federally and state enforceable permit terms or conditions. The unrestricted emissions rate shall be based on the maximum hourly rated capacity and the maximum utilization rate (8760 hours of operation per year) of the source or emission unit.

Regulation Applicability

Because the preconstruction permit programs overlap, it is important to identify ALL of the preconstruction programs that apply to a proposed change before determining that the proposed change is exempt from permitting under the Minor NSR program. 9 VAC 5-80-1100 G states, "Except as provided in 9 VAC 5-80-1310, no provision of this article shall be construed as exempting any stationary source or emissions unit from the provisions of the major new source review program. Accordingly, no provision of the major new source review program regulations shall be construed as exempting any stationary source or emissions unit from this article."

First, determine if one (or more) of the proposed changes qualifies as "construction", "modification", "major modification", "reconstruction" or "relocation" according to the definitions in the appropriate Article (6, 8 or 9) of the Regulations.

Second, check to see if there are any exclusions to the definition that might affect whether or not the definition (and the regulations) applies to the proposed change. For example, there are exclusions to the definitions of "modification" and "major modification" under Article 6.

If the proposed change does not qualify as a "construction", "modification", "reconstruction" or "relocation" under any of Articles 6, 8 or 9, then those regulations are not applicable and no permit can be issued for the proposed change under the authority of those regulations. (However, once a permit has been issued under Article 6, even if issued concurrently under the provisions of Articles 8 or 9, the permit can then be amended in accordance with Article 6.)

Third, determine which pollutants (if any) are subject to permit review under the Major Source NSR program. If there are any pollutants that are subject to Major Source New Source Review, then a preconstruction permit must be issued under Articles 8 and/or 9. Alternatively, a permit must be issued under Article 6, if Article 6 is going to be used to limit the PTE of all of the regulated pollutants below the thresholds for the Major Source New Source Review program.

In summary, regulatory applicability must be determined first. Only then can permit applicability be determined; more specifically, only then can a determination be made as to whether or not a qualifying change is exempt under the minor new source review program.

Determining Permit Applicability under the Minor NSR Program (Article 6)

The purpose of determining permit applicability under Article 6 is to decide if there are any pollutants emitted by the changed emissions units that will be subject to permitting requirements. Even if the change requires a PSD or Non-attainment NSR permit under Articles 8 or 9 for some of the pollutants emitted, the remainder of the "regulated pollutants" must be reviewed for permit applicability under Article 6.

The procedure for determining permit applicability under the Minor NSR permit program is as follows:

1. Determine what the extent of the "project" is.
2. Determine what kind of change to the source that the project represents i.e. decide whether the project is construction of a "proposed new source" or modification of a "pre-existing source".

3. Using the appropriate rules for the kind of change, calculate the magnitude of the emission rate increase for each of the pollutants resulting from the change that is calculate the “potential-to-emit” for a “proposed new source” and the “net emissions increase” for a “proposed modified source”.
4. Compare the magnitude of the emission rate increase of each pollutant with the appropriate exempt emission rates to determine if the pollutant increase will be subject to Minor NSR review.

Inability to include proposed limits on the “potential-to-emit” for determining Permit Applicability

Because there is no backup pre-construction permit program to the Minor Source NSR, there is no vehicle with which to make any proposed limits on throughput or emissions federally-enforceable, other than the Minor NSR permit program itself (for which applicability is being determined). Consequently, proposed permit limits shall not be used to determine if permit exemptions apply.

For the same reason, a source cannot use a proposed concurrent emission decrease on another emission unit to try to “net out” of permit applicability. Because the proposed reductions are not yet enforceable, they are not valid limits on the future actual emissions of the unit and can not be used to reduce the “net emission increase” of a proposed modified source for permit applicability purposes.

Inability to include emission decreases from shutdown emissions units in determining Permit Applicability

The only non-permit vehicle for making shutdowns federally enforceable is the shutdown procedure (DEQNET2 air/air_permitting/shutdown). The purpose of that procedure is to implement the provisions of 9 VAC 5-20-220 for clearing shutdown sources from the emission inventory. While use of these procedures do make the shutdown of an emissions unit federally enforceable, the prerequisite assumption is that the emissions unit has already been shut down, usually for a year or more. Such a shutdown is clearly not concurrent with any future proposed changes, and they are not creditable for determining the “net emissions increase” of particular changes under Article 6. The “shutdown procedures” are not to be used for the purpose of reducing the “net emissions increase” of a proposed “particular change.”

While the permit change procedures might be used to de-list a previously removed emissions unit from a permit, the prerequisite assumption is that the emissions unit has already been shut down. Such a shutdown is clearly not concurrent with any future proposed changes, and they are not creditable for determining the “net emissions increase” of those proposed “particular changes” under Article 6. The “permit change procedures” of Article 6 shall not be used for creating concurrent emission reductions for the purpose of reducing the “net emissions increase” of a proposed “particular change.”

Determining the extent of the “project”.

9 VAC 5-80-1100 F prevents a source from using a “pattern of development” to avoid NSR review under Article 6. 9 VAC 5-20-70 prevents a source from “the piecemeal carrying-out of an operation to avoid coverage by a standard that applies only to operations larger than a specified size.” These provisions prevent a source from avoiding NSR review by breaking up a project into individual “particular changes” that (1) are functionally related (such as a single process line or several equivalent process lines producing the same product) and (2) are mutually necessary to accomplish the change. Such particular changes are considered to be a single project for NSR purposes under Article 6, and all net emission increases from

those “particular changes” and their “directly resultant” increases and decreases shall be added together for determining permit applicability.

For example, a process heat boiler is going to be replaced with a larger boiler and a new production line will be installed in addition to the two existing production lines. These two changes would be unrelated if the boiler were not going to supply process heat to the production lines. In that case, these two “particular changes” could be considered separately for permit applicability even if they would occur concurrently. However, if the larger boiler was necessary to supply the additional process heat to the new press line (or to augment the process steam provided to all three lines), then the two changes would meet the twin tests of being functionally related and necessary.

It is not necessary for related “particular changes” to be accomplished concurrently in order for them to be considered as a single project. “Concurrent” is a concept related to determining which emission increases and decreases result from a “particular change” for the purpose of being included in the “net emission increase” calculation for that “particular change”. “Concurrent” is not a factor in determining which “particular changes” make up a project. A group of related “particular changes” should be permitted together as one project. If the particular changes that make up the “project” will not be accomplished concurrently, then they should be permitted as a “phased construction program” of incremental changes. 9 VAC 5-80-1120 G states, “In such cases, all net emissions increases from all emissions units covered by the program shall be added together for determining the applicability of this article.”

The Permit Applicability Test

Once the pollutants subject to Major NSR have been identified, then a determination must be made as to whether or not any of the “regulated pollutants” listed in Article 6 will be subject to Article 6 permitting requirements. A “particular change” at a source is ONLY exempt from permitting requirements if ALL of the following statements below are true:

- A. There is no increase in the emission rate of any “regulated pollutant” at the source that would be subject to permitting under the Major NSR program. (9 VAC 5-80-1100 G)
- B. The increases in the emission rates of all “regulated pollutants” at the source are exempt according to the rules in 9 VAC 5-80-1320 (as determined below). (9 VAC 5-80-1100 C)
- C. If the “particular change” emissions unit is an “affected facility” under NSPS, then the “affected facility” can be exempt only if it meets one of the two following requirements (9 VAC 5-80-1100 E):
 - (1) The proposed “affected facility” will be ONLY subject to recordkeeping and reporting requirements under the NSPS, or
 - (2) The proposed “affected facility” will be subject to the same permit requirements already applicable to a similar pre-existing “affected facility” at the source, those requirements are already contained in the current permit, those requirements can be made applicable to proposed “affected facility” (by an amendment to the permit), and those requirements are at least as stringent as the NSPS requirements.

The Permit Applicability test for a “proposed new source”:

9 VAC 5-80-1320 C states, “The exemption of new and relocated sources shall be determined as specified below:

1. Stationary sources with a potential to emit at rates less than all of the emission rates specified below [listed by regulated pollutant] shall be exempt from the provisions of this article pertaining to construction or relocation...
2. Facilities exempted by subsection B of this section shall not be included in the determination of potential to emit of a stationary source for purposes of exempting sources under this subsection."

This exemption only applies to entire sources that are proposed for construction at, or relocation to, a site or facility where no emissions units yet exist.

Since there is no backup preconstruction permit program, the potential-to-emit of each pollutant at the proposed new source is the annual unrestricted emission rate of that pollutant.

Calculating the "potential to emit" for the Article 6 Permit Applicability test for a "proposed new source"

1. List all of the emissions units at the "proposed new source".
2. Delete from the list developed in Step 1 any emissions units that are individually exempt under 9 VAC 5-80-1320 A.1.c, or exempt under 9 VAC 5-80-1320 B.
3. Calculate the annual unrestricted emission rates for each regulated pollutant listed in 9 VAC 5-80-1320 C for each of the remaining emissions units determined in Step 2. Include fugitive emissions, unless all of the emissions at the "proposed new source" will be fugitive.
4. Sum the annual unrestricted emission rates from the remaining emissions units and compare the result with the exempt emission rates for the pollutants listed in 9 VAC 5-80-1320 C. An Article 6 permit will be required if any of the listed pollutants are emitted at rates equal to or exceeding the exempt emission rates in 9 VAC 5-80-1320 C. **Note:** If PM10 can be quantified adequately, and the potential-to-emit of PM10 is calculated to be less than the exempt emission rate for PM10 using this calculation, then the source will be considered exempt for particulate matter also.
5. Regardless of the exemption status determined in Step 4, if the source emits toxics that are not exempt under 9 VAC 5-80-1320 E or F also, then an Article 6 permit is required.
6. Finally, regardless of the exemption status determined in Steps 4 and 5, an Article 6 permit is required for any "proposed new source" that contains emissions units that are "affected facilities" under any NSPS, and which have any requirements under that NSPS beyond recordkeeping and reporting requirements (See 9 VAC 5-80-1100 E).

The Permit Applicability test for a "proposed modified source":

9 VAC 5-80-1320 D states, "The exemption of modified and reconstructed sources shall be determined as specified below:

1. Stationary sources with net emissions increases less than all of the emission rates specified below [listed by regulated pollutant] shall be exempt from the provisions of this article pertaining to modification or reconstruction...
2. Facilities exempted by subsection B of this section shall not be included in the determination of net emissions increase of a stationary source for purposes of exempting sources under this subsection."

(Note that the definition of “reconstruction” in 9 VAC 5-80-1110 C effectively defines all replacement emissions units as reconstructed emissions units.)

The “net emissions increase” from any reconstructed emissions unit for which the reconstruction results in no increase in the potential-to-emit of the unit (and are individually exempt under 9 VAC 5-80-1320 A.2), will NOT be included in the calculation of the “net emission increase” at the modified stationary source.

However, “net emission increases” from reconstructed sources that DO result in an increase in the potential-to-emit of the unit, WILL be included in the calculation of the “net emission increase” at the proposed modified stationary source. This kind of reconstruction will follow the same permit applicability rules as described for other changes at a “proposed modified source”, so for purposes of this guidance no further distinctions will be made between this type of reconstructed emissions unit and proposed modified emission units in the following descriptions.

The definition of “net emissions increase” (NEI) in 9 VAC 5-80-1110 B refers to an increase in actual emissions, which is interpreted to mean the difference between the actual emissions before the proposed particular change (past actual emissions) and the “future actual emissions” expected after the change is complete.

Calculating “Past Actual Emissions” for determining the “Net Emissions Increase”

Past actual emissions (abbreviated as PA) will be calculated as the average annual emissions based upon the previous consecutive 24-month period. If there is another consecutive 24-month period that is more representative of normal operations, then the alternative period may be approved by DEQ if the source adequately supports and documents that assertion.

Calculating “Future Actual Emissions” for determining the “Net Emissions Increase”

Future actual emissions will be calculated based upon the lesser of the “source-specific allowable emissions” or the future “potential to emit”. There is no backup preconstruction program to the Minor NSR permit program. Whenever there is no enforceable allowable emissions limit and no permit restriction on the “potential to emit” of an emissions unit, then the “future actual emissions” of each pollutant at that emissions unit will be the annual “unrestricted emission rate” of that pollutant. The annual unrestricted emission rate of an emissions unit will be calculated based upon the equipment operating at its rated capacity for 8760 hours per year.

There will also be times when there are no applicable permit limits on the emission unit, but there is an applicable federally enforceable standard (such as an NSPS, NESHAPS or SIP-approved existing source rule) that restricts the allowable emission rate to something less than the unrestricted emissions rate. Such standards are enforceable by DEQ and EPA, but must also be “enforceable as a practical matter” in order to effectively limit emissions. Such standards must meet the six “enforceable as a practical matter” criteria in 9 VAC 5-80-1110 C in order to be acceptable for limiting emissions below the unrestricted emissions rate.

When there is a previous federally-enforceable allowable limit or permit restriction on the “potential to emit” of an emissions unit and that same limit will remain in place, unchanged, after the particular change is completed, then the “future actual emissions” of each pollutant at that emissions unit remains at the previous allowable emissions limit or permit-limited “potential to emit”.

For example, suppose ACME Widgets proposes to modify a permit-limited “widget-maker” so that it’s rated “widget”-making capacity and hourly emission rate will increase by 10% for reasons of operating flexibility. ACME Widgets chooses not to change the permitted annual “widget” production limit or the annual emission limit for the “widget-maker” because there is no foreseeable change in the widget market. Since the permit restrictions on annual production and annual emissions will not change, the annual “potential-to-emit” limits will remain in place and the “potential-to-emit” will not have changed. So the future actual emissions remain at what the PTE was before the proposed change. (The “net emissions increase” resulting from the proposed change would be equal to the unchanged permit limited PTE minus the past actual emissions.)

If the potential-to-emit of an emissions unit was previously restricted by federally-enforceable permit restrictions (or allowable emission limits), and if any one of those restrictions is proposed to be changed, then the “future actual emissions” is determined by recalculating the potential-to-emit by retaining the unchanged federally-enforceable restrictions, and by using an unrestricted value for the parameter being changed.

For example, suppose ACME Widgets proposes to modify the 30 ton per hour widget-maker line by raising the annual permit production limit from 100 kilotons of widgets to 200 kilotons. (Each kiloton of widgets produces 100 lbs of unrestricted emissions.) ACME Widgets asserts that the existing emission control device on the widget maker can maintain the current permit requirement of 90% control of emissions after the modification. Then for permit applicability purposes, the “future actual emissions” are equal to the unrestricted production limit (30 tons widgets/hr x 8760 hr/yr) multiplied by the unchanged emission factor (100 lbs emissions/1000 tons widgets) multiplied by the conversion factor to tons (1 ton/2000 lbs) multiplied by the unchanged control efficiency (0.10 lb emissions out/1 lb emissions in).

unrestricted emission rate (modified widget-maker) = 13.1 tons/yr

30 x 8760 x 100/1000 x 1/2000

future actual emissions (modified widget maker) = 1.3 tons/yr

30 x 8760 x 100/1000 x 1/2000 x 0.1/1

The “net emissions increase” would be equal to the partly restricted/partly unrestricted PTE of 1.3 tons per year minus the past actual emissions.

Calculating the “net emission increase” for the Permit Applicability test for a “proposed modified source”

9 VAC 5-80-1110 C states, “Net emissions increase’ means the amount by which the sum of the following exceeds zero: (i) any increase in actual emissions from a particular physical change or change in the method of operation at a stationary source; and (ii) any other increases and decreases in actual emissions at the source that are concurrent with the particular change and are otherwise creditable...” or

$$NEI = S [(FA - PA)_{\text{particular changes}}] + S [(FA - PA)_{\text{debottlenecked units}}] + S [(FA - PA)_{\text{netted units}}]$$

For example, suppose ACME Widgets wants to modify their plant to increase widget production. They want to add a new widget-maker and modify the widget

gluer to handle the extra widgets from the new unit. The new widget-maker will debottleneck the oversized widget-cutter. The modified widget-gluer will debottleneck boiler A, which supplies steam to the gluer. An old widget painter will be removed to allow the new widget maker to be installed. They also propose to remove an old boiler B that supplied heat to the driers on the old widget-painter (among other things) and another old boiler C that supplied heat to the warehouse. Now neither boiler is needed, and their removal is proposed for the purpose of generating emission reductions for “netting” the particular changes out of Minor NSR review. That’s the proposed “project”.

The proposed particular changes for this project include the addition of the new widget-maker and the modification of the widget-gluer, so the first term of the NEI calculation would be:

$$S(FA - PA)_{\text{particular changes}} = (FA_{\text{new widget-maker}} - 0) + (FA_{\text{widget-gluer}} - PA_{\text{widget gluer}})$$

The directly resultant changes for this project include the two debottlenecked changes (the widget-cutter and boiler A) and the one proposed netted unit change (the removal of the widget-painter). These changes all meet the tests “concurrent”, “functionally related” and “necessary” because the project (increase in production) cannot be fully accomplished without the completion of all three of these “directly resultant” changes. Another proposed change (the removal of old boiler B) might be functionally related and concurrent in time, it is not necessary for the completion of the project (it could be done at any time) and so it is not “directly resultant” from the particular changes. The removal of the old warehouse space heat boiler C is neither necessary nor functionally related to the particular changes, and so it is not creditable either.

The second term of the NEI calculation would be:

$$S(FA - PA)_{\text{debottlenecked units}} = (FA_{\text{widget-cutter}} - PA_{\text{widget-cutter}}) + (FA_{\text{boiler A}} - PA_{\text{boiler A}})$$

The removal of the widget-painter will cause an emission reduction, but for the purposes of permit applicability, it is not creditable so it cannot be used to net the project out of NSR review. Even though this change is directly related, real, excess, and quantifiable, it is not federally enforceable without the imposition of a permit condition requiring removal. So it cannot be used to net the project out of the only preconstruction review process that could result in that necessary permit condition. So for the purposes of calculating the “net emissions increase” for determining permit applicability, the final term of the NEI calculation ($S(FA - PA)_{\text{netted units}}$) will be zero.

It should be noted that ACME Widgets also proposed to take enforceable limits on the new widget-maker limiting the production rate to half of its capacity, proposed to accept new enforceable limits on boiler A and proposed to add emission controls to the widget-gluer in order to reduce the net emission increase at ACME Widgets to below the exempt emission rates. For permit applicability purposes, none of these potential emission reductions can be considered. The “future actual emissions” rate must be evaluated at the unrestricted emission rate unless (1) there are permit limits in effect on an emissions unit that will not be changed or (2) there are permit limits in effect on an emissions unit, some of which will be changed. In case 1, the “future actual emissions” rate remains at what the PTE was before the change. In case 2, the “future actual emissions” rate may be calculated using unrestricted values for those limits being changed, and using the permit-limited values for those limits not being changed. An example of case 2 would be if ACME Widgets proposed to double the permitted throughput limit on

widget-maker #2, for which 95% efficient emission controls are required by a previous permit. The calculation of the “future actual emissions” rate may include the unchanged 95% control efficiency.

In summary, the procedure for calculating the “net emission increase” for the purpose of determining permit applicability for a “proposed modified source” is:

1. List all of the “particular change” emissions units at the “proposed modified source”. Add to that list all of the emissions units at the source with debottlenecked emission increases that are directly resultant from the particular changes. Do not list “netted” emissions units at this point.
2. Delete from the list in Step 1 any emissions units that are individually exempt under 9 VAC 5-80-1320 A.1.b or c, or exempt under 9 VAC 5-80-1320 B.
3. Calculate the annual emission rate increase (past actual to future actual emissions) for each regulated pollutant listed in 9 VAC 5-80-1320 D for the remaining emissions units determined in Step 2. Use the permit applicability rules discussed above (or summarized in Table 1 below) for determining the future actual emissions. Include fugitive emissions, unless all of the emissions at the “proposed modified source” will be fugitive.
4. Sum the annual emission rate increases from the emissions units remaining in Step 2 and calculated in Step 3, and compare the resulting “net emission increase” with the exempt emission rates for the pollutants listed in 9 VAC 5-80-1320 D. An Article 6 permit will be required if any of the listed pollutants are emitted at rates equal to or exceeding the exempt emission rates in 9 VAC 5-80-1320 D. **Note:** If PM10 can be quantified adequately, and the potential-to-emit of PM10 is calculated to be less than the exempt emission rate for PM10 using this calculation, then the source will be considered exempt for particulate matter also.
5. Regardless of the exemption status determined in Step 4, if the source emits toxics (or HAPs) that are not exempt under 9 VAC 5-80-1320 E or F also, an Article 6 permit will be required.
6. Finally, regardless of the exemption status determined in Steps 4 and 5, an Article 6 permit will be required for any “proposed modified source” that contains new, modified, relocated, or reconstructed (replacement) emissions units that are “affected facilities” under any NSPS and which have requirements under that NSPS beyond recordkeeping and reporting requirements. **Note:** if the affected facility would also be covered by existing permit conditions for other existing similar “affected facilities” at the source which require compliance with emission standards and other requirements that are at least as restrictive as the applicable NSPS, then the change may be exempted in accordance with the determination in Steps 4 and 5.

Changes to Permits

Once a permit is issued in accordance with Article 6, the permit may be changed according to the provisions contained in 9 VAC 5-80-1260 through -1300. However, a proposed change that qualifies as a non-exempt modification of the stationary source must undergo the NSR review process, which will result in a new permit. That new permit may also subsume all of the requirements of the old permit and may then supersede it. The provisions of 9 VAC 5-80-1260 through 1300 are reserved for changes that do not trigger NSR review. More specifically, the significant amendment process shall not be used to implement changes that require NSR review, such as (non-exempt) modifications.

A proposed “modification” to a stationary source that is determined to be exempt from permitting under 9 VAC 5-80-1320 may be accomplished with a minor amendment to an existing permit as long as it does not violate any of the restrictions on minor amendments contained in 9 VAC 5-80-1280 A. However, the significant amendment procedures of 9 VAC 5-80-1290 are to be used if the exempt modification does not meet the requirements for a minor amendment.

Determining “BACT Applicability”

If there are any pollutants to which the Minor NSR program applies (i.e. that are not exempt), then a permit must be issued for the proposed change and a determination has to be made as to whether or not Minor NSR BACT should be applied to the changed emissions units in order to control those pollutants. If BACT applies, then the proper level of BACT (usually referred to as “state BACT” for the Minor NSR program) must be determined in accordance with Chapter 8 of the Minor NSR manual.

BACT and LAER must be determined for the control of pollutants subject to the Major Source NSR program. BACT and LAER for Major NSR are determined in accordance with 9 VAC 5-50-270 and 9 VAC 5-50-280, NOT in accordance with 9 VAC 5-50-260 and this procedure. This procedure only describes the BACT applicability process for those pollutants NOT subject to Major Source NSR. Non-exempt HAP emissions are subject to BACT per 9 VAC 5-60-320, not 9 VAC 5-50-260.

The “BACT Applicability” Test

The concept of a separate test to determine to which emissions units Best Available Control Technology standard (BACT) should be applied is a new concept consistent with the revisions to the Minor NSR permitting program promulgated on September 1, 2003.

A clear distinction must be made between the process of determining BACT applicability, and the process of establishing the degree of emissions control required to meet the BACT standard once applicability has been determined. The applicability test only determines the pollutants and emissions units for which the new BACT standard must be applied. Once the BACT standard is determined to be applicable, then the degree of emissions reduction that represents this standard is determined for those pollutants and emission units by a separate procedure. The resulting emission standard may be an add-on control technology, or nothing more than the imposition of operational standards (i.e. throughput limits, emission limits, etc.) or appropriate work practices. It is even possible that the resulting BACT determination may be no additional controls are required.

A determination that BACT is not applicable for a proposed change does NOT mean that previous BACT determinations for that source are no longer valid. BACT is still required of all new and modified sources that are subject to the new source review program (see 9 VAC 5-50-240 C and -260 A). The provisions of 9 VAC 5-50-10 C means that if a case-by-case BACT has already been determined and applied to a particular emissions unit or source, it must be applied from then on. This previous BACT determination has become the “BACT floor” for the applicable source. Subsequent BACT applicability determinations do not affect this previous determination unless it requires that a new, more restrictive BACT standard be applied to the affected emission units.

Nearly all new and modified sources will propose as BACT those operational standards and/or work practices that most closely represent the maximum operating conditions that they expect and that they can accept as federally-enforceable operating limitations. By the imposition of such limits, the source

may hope to make additional add-on controls unnecessary (i.e. achieve a BACT determination that “no additional control” is necessary).

Paragraphs 9 VAC 5-50-260 B and C provide the regulatory basis to decide if additional controls (beyond any proposed operational limits) should be examined for BACT. This process is also used to determine if an incremental BACT level of emissions reduction is necessary over and above any previous BACT determination. There are two basic differences in the way that permit applicability and BACT applicability are determined.

The first of these differences is that, for purposes of BACT applicability, most of the proposed operational limitations that will be made federally enforceable in the permit may also be used to calculate the “future actual emissions” of the source. However, NO proposed new add-on control technology requirements will be considered in the calculation of the “future actual emissions” rate for this applicability determination, since this would mean that it would be possible to use “non-BACT” control technology requirements to avoid a current BACT control technology determination.

The second of the two basic differences between the determination of “permit applicability” and “BACT applicability” is that creditable emission reductions from directly resultant “netted emissions units” may be used to calculate the “future actual emissions” of the source. The reason for this is that the necessary operational limitations on the “netted emissions unit” can be made enforceable, since an enforceable permit will be issued anyway.

Once the BACT standard is determined to be applicable to the changes, then the BACT or incremental BACT level of reductions is established using the procedures in Chapter 8 of the Minor NSR Manual. It is at this stage in which a consideration of an incremental level of reductions will likely result in a determination of “no additional control” for many modifications that previously had a case-by-case BACT determinations made for that source or emissions unit.

The BACT Applicability test for a “proposed new source”:

9 VAC 5-50-260 B states, “A stationary source shall apply best available control technology for each regulated pollutant that it would have the potential to emit in amounts equal to or greater than the levels in 9 VAC 5-80-1320 C.”

That statement applies to all new and modified sources. However, the BACT applicability determination for modified sources is stated in the next paragraph (9 VAC 5-50-260 C). So, by the process of elimination, 9 VAC 5-50-250 B applies only to entire new sources that are proposed for construction at, or relocation to, a site or facility where no emissions units yet exist.

Emissions units that are exempt from permitting under the provisions of 9 VAC 5-80-1320 A and B are not intended to have additional BACT applied to them, so emissions from those emissions units are excluded from the calculation of the future “potential-to-emit” of a “proposed new source” for BACT applicability. The other calculation rules specified in 9 VAC 5-80-1320 C also apply (i.e. for fugitive emissions and PM-10).

Calculating the “potential to emit” for the BACT Applicability test for a “proposed new source”

1. List all of the emissions units at the “proposed new source”.

2. Delete from the list in Step 1 any emissions units that are individually exempt under 9 VAC 5-80-1320 A.1.c, or exempt under 9 VAC 5-80-1320 B.
3. Calculate the proposed annual “potential to emit” for each regulated pollutant listed in 9 VAC 5-80-1320 C, for each of the remaining emissions units determined in Step 2. For BACT applicability, proposed operational limits such as throughput limits, material type and content specifications, and emission limits that will be made enforceable as a practical matter in the new permit may all be used to calculate the future “potential to emit”. Proposed add-on control technology limits shall NOT be used to calculate the future “potential to emit” for BACT applicability. Include fugitive emissions, unless all of the emissions at the “proposed new source” will be fugitive.
4. Sum the proposed annual “potential to emit” for each pollutant from the remaining emissions units and compare the sums with the emission rates for the pollutants listed in 9 VAC 5-80-1320 C.

The Determination of BACT Applicability for a “proposed new source”

For each of the pollutants that have the potential to be emitted at rates (as calculated in Step 4) equal to or exceeding the emission rates in 9 VAC 5-80-1320 C, additional BACT controls must be considered for each of the emissions units that emit those pollutants. Refer to Chapter 8 of the Minor NSR Manual for the procedure for determining BACT for these emission units and pollutants.

The BACT Applicability test for a “proposed modified source”:

9 VAC 5-50-260 C states “A modification shall apply best available control technology for each regulated pollutant for which it would result in a net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur in amounts equal to or greater than the levels in 9 VAC 5-80-1320 D as a result of physical change or change in the method of operation in the unit.”

The definition of “net emissions increase” from Article 6 is used to determine BACT applicability and includes the term “an increase in actual emissions”. Just as it was for determining “permit applicability, the term “increase in actual emissions” is understood to be the difference between the actual emissions before the proposed particular change (past actual emissions) and the “future actual emissions” expected after the change is complete. The rules for calculating “past actual emissions” (abbreviated as PA) for BACT applicability are the same as they were for determining permit applicability.

Calculating “Future Actual Emissions” for determining “BACT Applicability

Just like with determining “permit applicability”, the “future actual emissions” for BACT applicability will be calculated based upon the lesser of “allowable emissions” and the future “potential to emit”. However, in the rare case that no operational limits are proposed for the permit, an “allowable emissions” rate based upon an applicable emission standard shall NOT be used in lieu of an unrestricted emissions rate (the PTE when there are no federally enforceable operational limits) unless the emissions standard:(1) is “enforceable as a practical matter” and (2) represents a “BACT floor”. For example, NSPS standards represent a “BACT floor”. Existing source rules are RACT, and do not represent a “BACT floor”.

Since a preconstruction permit will be issued for these particular changes, most of the proposed operational limitations that will be made enforceable in the permit may be used to calculate the “future

actual emissions” of the source for BACT applicability. However, NO proposed new add-on control technology requirements, nor any existing permit control technology requirements that will be changed, may be considered in the calculation of the “future actual emissions” rate for this applicability determination, since this would mean that it would be possible to use “non-BACT” control technology requirements to avoid a current BACT control technology determination. Only existing permit control technology requirements that will NOT be changed, may be considered in calculating the “future actual emissions” rate for determining BACT applicability for a “proposed modified source”.

Calculating the “net emission increase” for the BACT Applicability test for a “proposed modified source”

Using the definition in Article 6, the “net emissions increase” means the amount by which the sum of the following exceeds zero: (i) any increase in actual emissions from a particular physical change or change in the method of operation at a stationary source; and (ii) any other increases and decreases in actual emissions at the source that are concurrent with the particular change and are otherwise creditable... ” or

$$NEI = S [(FA - PA)_{\text{particular changes}}] + S [(FA - PA)_{\text{debottlenecked units}}] + S [(FA - PA)_{\text{netted units}}].$$

1. List all of the “particular change” emissions units at the “proposed modified source”. Add to that list all of the emissions units at the source with debottlenecked emission increases that are directly resultant from the particular changes. Include all of these emissions units even if there are concurrent decreases at these emissions units (such as new throughput limits or limits on materials). (Do not list any “netted” emissions units.) Include sources of fugitive emissions.
2. Delete from the list in Step 1 any emissions units that are individually exempt under 9 VAC 5-80-1320 A.1.b or c, or exempt under 9 VAC 5-80-1320 B.
3. For each emissions unit remaining after the deletions in Step 2, calculate the net emission increases as the difference between the proposed future actual emissions and the past actual emission rate for each regulated pollutant listed in 9 VAC 5-80-1320 D. Proposed operational limits (such as throughput limits, material type and content specifications, and emission limits) that will be made enforceable as a practical matter in the new permit, and any existing permit control technology requirements (already federally enforceable) that will not be changed, may all be used to calculate the “future actual emissions” rate for the emissions units remaining in Step 2. Proposed new add-on control technology limits or any existing permit control technology requirements that will be changed shall NOT be used to calculate the “future actual emissions” rate for BACT applicability.
4. List all of the emissions units that are neither particular changes nor debottlenecked emissions units, but are still directly resultant from the particular changes and which will generate emission reductions for reducing the net emissions increase of the particular changes. These are the proposed “netted emissions units”.
5. Delete from the list in step 4 all those proposed “netted emissions unit” changes that are not creditable. To be creditable, the emission reductions have to be concurrent, functionally related to the particular changes, necessary to accomplish the particular changes, real (representing reductions to past actual emissions), excess (not previously relied upon in issuing a permit for the source under the new source review program and that permit is in effect when the increase in actual emissions from the particular change occurs) and those emission reductions will be made enforceable as a practical matter by the time that the particular change occurs.

6. For each emissions unit remaining after the deletions in Step 5, calculate the net emission increases (decreases) as the difference between the proposed future actual emissions and the past actual emission rate for each regulated pollutant listed in 9 VAC 5-80-1320 D. The calculated “future actual emissions” rate for netted emissions units remaining in Step 5 may include emission reductions from add-on control technologies as long as the proposed add-on controls also meet the most restrictive of any other applicable requirements. Proposed operational limits may be used for calculating “future actual emissions” rate for the purposes of BACT applicability.
7. Sum the net emission increases (and decreases) calculated for each pollutant from each of the emissions units in steps 3 and 6. This is the “net emission increase” for the project for BACT applicability purposes.

Example: Calculate the “net emissions increase” for BACT applicability in the case of ACME Widgets’ earlier proposal to modify the widget-making plant to increase widget production (assuming that a permit had been required for the change). ACME Widgets wanted to add a new widget-maker and to modify the widget gluer to handle the extra widgets from the new unit. The new widget-maker would debottleneck the oversized widget-cutter. The modified widget-gluer would debottleneck boiler A that supplies steam to the gluer. The old widget painter would be removed to allow the new widget maker to be installed in its place. ACME Widgets also proposed to remove old boiler B that supplied heat to the driers on the old widget-painter but was now no longer needed and proposed to remove old boiler C that supplied space heat to the warehouse but which was also no longer needed. ACME Widgets proposed to take federally enforceable limits on the new widget-maker which would limit its production rate to half of its capacity, proposed to accept new federally-enforceable limits on boiler A, and proposed to add emission controls to the widget-gluer in order to further reduce the “net emission increase”.

(i) The particular changes were:

New widget maker (Table 1, line 2 A).

Old capacity:	None
New capacity:	100 tons per year of emissions of pollutant Z
Permit Limited Future Actual Emissions:	50 tons per year of emissions of pollutant Z
Proposed control technology:	None
Past Actual Emissions:	0 tons per year of emissions of pollutant Z
Net emission increase (BACT)	$(50 - 0) = 50$ tons per year of pollutant Z

Modified widget gluer (Table 1, line 2 B, assuming no previous permit limits).

Old capacity:	20 tons per year of emissions of pollutant Z
Modified capacity:	40 tons per year of emissions of pollutant Z
Old control technology:	None
Proposed control technology:	80 percent control efficiency for pollutant Z
Permit Limited FA without controls:	25 tons per year of emissions of pollutant Z
Permit Limited FA with controls:	5 tons per year of emissions of pollutant Z
Past Actual Emissions:	15 tons per year of emissions of pollutant Z
Net emission increase (BACT):	$(25 - 15) = 10$ tons per year of pollutant Z

(ii) Other emission increases and decreases are:

“Debottlenecked emissions units”:

Debottlenecked widget cutter (Table 1, line 3 A, assuming no previous permit limits).

Maximum capacity	50 tons per year of emissions of pollutant Z
Old bottlenecked capacity:	45 tons per year of emissions of pollutant Z
New debottlenecked capacity:	50 tons per year of emissions of pollutant Z
Proposed control technology:	None
New Future Actual Emissions	50 tons per year of emissions of pollutant Z
Past Actual Emissions:	40 tons per year of emissions of pollutant Z
Net emission increase (BACT):	$(50 - 40) = 10$ tons per year of pollutant Z

Debottlenecked boiler A (Table 1, line 3 A, assuming no previous permit limits).

Maximum Capacity:	30 tons per year of emissions of pollutant Z
Old bottlenecked capacity:	15 tons per year of emissions of pollutant Z
New debottlenecked capacity:	30 tons per year of emissions of pollutant Z
Proposed control technology:	None
Permit Limited Future Actual Emissions:	25 tons per year of emissions of pollutant Z
Past Actual Emissions:	10 tons per year of emissions of pollutant Z
Net emission increase (BACT):	$(25 - 10) = 15$ tons per year of pollutant Z

“Proposed netted emissions units”

Removal of boiler B.

Maximum Capacity:	30 tons per year of emissions of pollutant Z
Permit Limited Future Actual Emissions:	Zero (removal)
Past Actual Emissions:	10 tons per year of emissions of pollutant Z
Creditable Status:	Not Creditable (functionally-related, but not necessary)

Removal of boiler C.

Maximum Capacity:	20 tons per year of emissions of pollutant Z
Permit Limited Future Actual Emissions:	Zero (removal)
Past Actual Emissions:	10 tons per year of emissions of pollutant Z
Creditable Status:	Not Creditable (not necessary or functionally-related)

Removal of widget painter (Table 1, line 4 A, assuming no previous permit limit).

Maximum Capacity:	30 tons per year of emissions of pollutant Z
Permit Limited Future Actual Emissions:	Zero (0) tons per year (removal) of pollutant Z
Past Actual Emissions:	10 tons per year of emissions of pollutant Z
Net emission increase (BACT):	$(0 - 10) = -10$ tons per year of pollutant Z
Creditable Status:	Creditable (Concurrent, functionally-related and necessary)

(iii) The proposed particular changes for this project include the addition of the new widget-maker and the modification of the widget-gluer, so the first term of the NEI calculation would be:

$$S(FA - PA)_{\text{particular changes}} = (FA_{\text{new widget-maker}} - 0) + (FA_{\text{widget-gluer no controls}} - PA_{\text{widget gluer}})$$

$$S(FA - PA)_{\text{particular changes}} = (50_{\text{new widget-maker}} - 0) + (25_{\text{widget-gluer no controls}} - 15_{\text{widget gluer}})$$

$$S(FA - PA)_{\text{particular changes}} = \mathbf{60 \text{ tons per year of pollutant Z}}$$

(iv) The debottlenecked changes for this project include the changes to the widget-cutter and boiler A. These changes all meet the tests (“concurrent”, “functionally related” and “necessary”) because these changes happen automatically as a directly result of the particular changes. The second term of the NEI calculation would be:

$$S(FA - PA)_{\text{debottlenecked units}} = (FA_{\text{widget-cutter}} - PA_{\text{widget-cutter}}) + (FA_{\text{boiler A}} - PA_{\text{boiler A}})$$

$$S(FA - PA)_{\text{debottlenecked units}} = (50_{\text{widget-cutter}} - 40_{\text{widget-cutter}}) + (25_{\text{boiler A}} - 10_{\text{boiler A}})$$

$$S(FA - PA)_{\text{debottlenecked units}} = \mathbf{25 \text{ tons per year of pollutant Z}}$$

(v) The changes proposed for the purpose of generating creditable emission reductions for the purpose of “netting” out of BACT review are the removal of the widget-painter and the removal of boilers A and B). As discussed previously, the removal of the widget painter meets the tests of “concurrent”, “functionally related” and “necessary” because the installation of the new widget-maker cannot proceed until it is removed. The removal of boiler B is not creditable because even though it is functionally related, it is not necessary, because the project can be completed without it. The removal of boiler C is neither functionally related nor necessary. The final term of the NEI calculation would be:

$$S(FA - PA)_{\text{netted units}} = (FA_{\text{widget painter}} - PA_{\text{widget painter}})$$

$$S(FA - PA)_{\text{netted units}} = (\text{Zero}_{\text{widget painter}} - 10_{\text{widget painter}})$$

$$S(FA - PA)_{\text{netted units}} = \mathbf{-10 \text{ tons per year of pollutant Z}}$$

(vi) So the “net emissions increase” for the widget production line increase project is:

$$NEI = S[(FA - PA)_{\text{particular changes}}] + S[(FA - PA)_{\text{debottlenecked units}}] + S[(FA - PA)_{\text{netted units}}]$$

$$NEI = (60)_{\text{particular changes}} + (25)_{\text{debottlenecked units}} + (-10)_{\text{netted units}}$$

$$NEI = \mathbf{75 \text{ tons per year of pollutant Z (a net increase)}}$$

The Determination of BACT Applicability for a “proposed modified source”

The determination of whether or not additional BACT controls must be considered, is a two-step process. The first sentence of 9 VAC 5-50-260 C states, “A modification shall apply best available control

technology for each regulated pollutant for which it would result in a net emissions increase at the source.” So this first step involves identifying which of the pollutants listed in 9 VAC 5-80-1320 D have a “net emissions increase” value greater than zero at the source. These are the only pollutants of concern for BACT.

The second sentence of 9 VAC 5-50-260 C states, “This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur in amounts equal to or greater than the levels in 9 VAC 5-80-1320 D as a result of physical change or change in the method of operation in the unit.” In this second step, each of the emissions units that had an increase in the emission rates in the pollutants of concern for BACT (both “particular changes” and “debottlenecked emissions units”) will be examined to see if the net emission increase from that emissions unit will be greater than the exempt emission rates.

If there are any such qualifying emissions units, then a BACT analysis must be performed on those emissions units for the pollutants of concern for BACT, in order to determine exactly what the appropriate BACT control technology is, that is needed to control the pollutants of concern from each of those units. It is assumed that BACT is “no additional control” for sources and emissions units that fall below this applicability threshold. In summary:

8. List each pollutant for which there was a “net emissions increase” greater than zero at the source calculated in Step 7. These are the pollutants of concern for BACT.
9. List any emissions units from Step 3 that emit the pollutants of concern for BACT. Compare the “net emission increase” for each of the emissions units emitting these pollutants (calculated in Step 3) with the exempt emission rates for those pollutants listed in 9 VAC 5-80-1320 D. If any of these emissions units emit a “pollutant of concern for BACT” in amounts equal to or greater than the levels in 9 VAC 5-80-1320 D, an analysis must be performed to determine the appropriate BACT control technology to control emissions of each of these pollutants from the emissions unit.

If BACT is determined to be applicable to the emissions unit, then a BACT analysis must follow to establish what controls constitute the best available control technology standard for that source. The BACT analysis is made in accordance with Chapter 8 of the manual.

Example: The “BACT applicability” determination for ACME Widgets’ earlier proposal to modify the widget-making plant to increase widget production would proceed as follows:

In the first step, look at the “net emission increase” at ACME Widgets. That was calculated to be 75 tons per year of pollutant Z and was greater than zero. So pollutant Z is a “pollutant of concern for BACT”.

In the second step, look at the net emission increases of pollutant Z from the “particular changes” and “debottlenecked emissions units” and compare each of those to the exempt emission rates in 9 VAC 5-80-1320 D. For this problem, the exempt emission rate for pollutant Z is 15 tons per year. The net emission increases of pollutant Z from each of the affected emissions units were:

New widget maker (NEI BACT)	50 tons per year of emissions of pollutant Z
Modified widget gluer (NEI BACT)	10 tons per year of emissions of pollutant Z

Debottlenecked widget cutter (NEI BACT)	10 tons per year of emissions of pollutant Z
Debottlenecked boiler A (NEI BACT)	15 tons per year of emissions of pollutant Z

Only the new widget maker and the debottlenecked boiler A need to be examined for BACT because the emissions of pollutant Z are equal to or greater than 15 tons only for those emissions units. An analysis of the control technologies that are feasible and taking into account energy, environmental and economic impacts and other costs indicates a wet scrubber meets the BACT standard for the new widget maker, but there is no candidate for add-on control technology for boiler A due to the current design and the proposed operational limitations. BACT for the boiler is determined to be “no additional control”.

Use of Summary Table 1

Table 1 is provided as a summary of the rules for determining permit and BACT applicability for proposed changes at a source. For a proposed new source, each emissions units is also a new emissions unit and the PTE of all of the individual emissions units are summed to determine permit or BACT applicability.

For a proposed modified source, each of the proposed changes must be correctly identified as belonging to one of either Block 2 (particular changes), Block 3 (debottlenecked changes) or block 4 (netted emissions unit changes). Then, the rules for the appropriate case in each block are used to calculate the net emission increase (or decrease) for each emissions unit before the results can be summed for the applicability tests.

The column labeled “Is there a Concurrent Emission Decrease at the Unit?” is only intended to indicate that some emission units (particular changes and debottlenecked changes) may have both emissions increases and decreases proposed. For instance, the particular change at a proposed modified source may consist of a proposed modification to a pre-existing emission unit with no permit (Block 2B) that will increase the hourly capacity by 100%. That proposed change would increase the unrestricted emission rate of the emissions unit from 100 tons to 200 tons per year. But the source also proposes to accept a permit limit that restricts the throughput increase to only 50% of the potential increase in capacity. The result is a smaller value for the “future actual emissions” (only 150 tons, instead of 200 tons per year). Although the smaller value may NOT be used for calculating permit applicability (since it is not yet federally enforceable), it may be used in Block 2B to calculate the “net emissions increase” for BACT applicability. The reduction would be considered in Block 2B with the proposed increase for that emissions unit, not as a separate “netted emissions unit” in Block 4A.

Remember that emissions units that are individually exempt under 9 VAC 5-80-1320 A or B are not included in these determinations.

Apply the applicability tests in accordance with the descriptions above to make the final determinations.

Table 1: Determining Minor Source NSR Applicability

Type of change to Source	Type of Emissions unit Change	Are there Previous Permit Limits on the Unit?	If so, are the Previous Permit Limits being Changed?	Is there a Concurrent Emission Decrease at the Unit?	Permit Applicability Generally Based On What the PTE or NEI of the Source Would Be If NO New Permit were to be Issued.	BACT Applicability Generally Based On What the PTE or NEI of the Source Would Be AFTER the New Permit is Issued. (See notes 3 and 5 for exceptions.)
1. Emission Increase from a Proposed New Source . (Applicability is based upon the future “potential to emit” of all emissions units proposed for construction.)						
Proposed New Source	New or Relocated Emissions Units	No		Yes or No	Future potential to emit (PTE) of New Source. Use the “unrestricted emission rate” (UER) for the future PTE of each of the new units.	Future PTE of the New Source. Use the proposed permit-limited PTE ³ for the PTE of each of the new units.
2. Emission Changes from Particular Changes at a Modified Source . (Applicability is based upon the “net emissions increase” of all changes at the source proposed for modification.) ¹						
Proposed Modified Source ⁶	A. New or Relocated Emissions Units	No		Yes or No	Future Actual Emissions - Past Actual Emissions (FA - PA) of each New Unit. Use the lesser of UER or Allowable Emission Rate (AER) for the FA, and zero for PA of the new unit. ⁷	(FA - PA) for each New Unit. Use the proposed permit-limited PTE ³ for FA. (The PA for a new unit is zero.)
	B. Modified or Reconstructed Emissions units	No		Yes or No	(FA - PA) for each Modified Unit. Use the lesser of UER or AER for the FA. ⁷	(FA - PA) for each Modified Unit. Use the proposed permit-limited PTE ³ for FA.
	C. Modified or Reconstructed Emissions units	Yes	No	Yes or No	(FA - PA) for each Modified Unit. Use the former permit-limited PTE for FA.	(FA - PA) for each Modified Unit. Use the former permit-limited PTE for FA.
	D. Modified or Reconstructed Emissions units	Yes	Yes	Yes or No	(FA - PA) for each Modified Unit. Calculate the FA using unrestricted values for any permit limits being changed, and using the former permit-limited values for those not being changed.	(FA - PA) for each Modified Unit. Use the proposed permit-limited PTE ³ for FA.
3. Concurrent Emission Changes from any Emissions Units Debottlenecked by the Particular Changes at a Modified Source. ¹						
Proposed Modified Source ⁶	A. Pre-Existing Emissions Unit ²	No		Yes or No	(FA - PA) for each Unit Debottlenecked. Use the lesser of UER or AER for the FA of a unit being totally debottlenecked. ⁷ Use the new bottlenecked (and otherwise unrestricted) emission rate if the unit is not being totally debottlenecked.	(FA - PA) for each Unit Debottlenecked. Use the proposed permit-limited PTE ³ for FA.
	B. Pre-Existing Emissions Unit ²	Yes	No	Yes or No	(FA - PA) for each Unit Debottlenecked. Use the former permit-limited PTE for the FA.	(FA - PA) for each Unit Debottlenecked. Use the former permit-limited PTE for the FA.
	C. Pre-Existing Emissions Unit ²	Yes	Yes	Yes or No	(FA - PA) for each Unit Debottlenecked. Calculate the FA using unrestricted values for any permit limits being changed, and using the former permit-limited values for those not being changed.	(FA - PA) for each Unit Debottlenecked. Use the proposed permit-limited PTE ³ for FA.
4. Concurrent Emission Reductions from any other Emissions Units used for “Netting” at a Modified Source . ¹						
Proposed Modified Source ⁶	A. Pre-Existing Emissions Unit ²	No		Yes	Can Not Net emission reductions without permit limits. ⁴ This term will always be zero.	(FA - PA) for the Netted Unit. Use the proposed permit-limited PTE ⁵ for FA.
	B. Pre-Existing Emissions Unit ²	Yes	No	Yes	Can Not Net emission reductions without a change to previous permit limits. ⁴	Can Not Net emission reductions without a change to previous permit limits. ⁴
	C. Pre-Existing Emissions Unit ²	Yes	Yes	Yes	Can Not Net emission reductions without new permit limits. ⁴ This term will always be zero.	(FA - PA) for the Netted Unit. Use the proposed permit-limited PTE ⁵ for FA.

Footnotes for Table 1 (Determining Minor Source NSR Applicability):

¹ The "net emissions increase" (NEI) is the amount by which the sum of the following exceeds zero: (i) the increase in actual emissions (FA - PA) from a particular physical change or change in the method of operation at a stationary source plus (ii) any other increases [i.e. such as those due to debottlenecking other emissions units] and decreases [i.e. emission reductions due to netting reductions made at other emissions units] in actual emissions at the source that are concurrent with the particular change and are otherwise creditable. The "net emission increase" may be calculated as follows:

$$NEI = S [(FA - PA)_{\text{particular changes as determined by section 2}}] + S [(FA - PA)_{\text{debottlenecked changes as determined by section 3}}] + S [(FA - PA)_{\text{netted changes as determined by section 4}}]$$

² "Pre-Existing Unit" means that this source or unit had been constructed at some time previous to the proposed change.

³ For BACT applicability purposes, the permit-limited future PTE for particular changes and any debottlenecked units may be calculated using any proposed permit limits except for those resulting from any proposed permit requirements for new add-on control technologies. Emission reductions resulting from existing permit requirements for add-on control technologies (that will remain unchanged in the new permit) may be used.

⁴ Creditable actual emission increases and decreases must be concurrent with and directly resultant from the particular change, and also real, excess, quantifiable and either federally enforceable or enforceable as a practical matter. Excess means that it has not been previously relied upon in issuing a current NSR permit. (The definition of "actual emission increase" requires that the emissions increases be real and quantifiable.)

⁵ The permit-limited future PTE for emission reductions on emissions units used for netting (for determining BACT applicability) may be calculated using any proposed permit limits, including add-on control technology efficiencies.

⁶ A source may be modified by physical or operational changes to one or more emissions units that meet the definitions of any of the following: construction of a one or more new emissions units, relocation of one or more emissions units (from another facility), modification of one or more emissions units, or reconstruction of one or more emissions units; or any combination of them.

⁷ The Allowable Emissions Rate (AER) may be used in lieu of the Unrestricted Emissions Rate (UER) ONLY when the emission standards are both federally enforceable and "enforceable as a practical matter". NSPS and NESHAPS emission standards are enforceable as a practical matter. The UER should be used instead of AER when Chapter 40 existing source rules are the only limits on the allowable emissions rate.

Key to Abbreviations:

FA "Future Actual Emissions"
PA "Past Actual Emissions"
PTE "Potential to Emit"
UER "Unrestricted Emissions Rate"
AER "Allowable Emissions Rate"

Assumptions:

- a. Article 6 permits may not be issued to sources that are exempt from permitting.
- b. Since there is no backup permit program, future PTE for permit applicability must be calculated as if no permit was going to be issued.
- c. The values calculated for PTE and the "net emission increase" may be different for permit applicability and BACT applicability.
- d. Any existing permit limits that are not proposed for change remains federally enforceable even if no new permit issued, and may be used for limiting PTE for the purpose of determining permit applicability.
- e. Concurrent emission reductions must be creditable, i.e. the change must meet all of the following: (1) concurrent with and directly resultant from the particular change (2) real, (3) excess, (4) quantifiable and (5) federally-enforceable (or enforceable as a practical matter).